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Myobiid Mites (Acarina, Myobiidae) Parasitic
on Bats in Japan

VII. Genera *Metabinuncus* FAIN, 1972, and *Ewingana* RADFORD, 1948

With 3 Text-figures

Kimito UCHIKAWA

*Department of Parasitology, Faculty of Medicine, Shinshu University,
Matsumoto, Nagano 390, Japan*

ABSTRACT *Metabinuncus birmanicus* Fain, 1976, is added to the fauna of Japan, and *Ewingana (Mormomyobia) yoshikurai* sp. nov. is described based on both the sexes and nymphs.

The author already recorded the myobiid mites of six genera as the parasites of Japanese bats in this series of study. Mites of the other two genera have been expected to occur on *Hipposideros turpis* Bangs and *Tadarida teniotis insignis* (Blyth), both of which are rare. It was extremely fortunate for the author to have a chance to examine closely the specimens of the above two bats preserved in alcohol in the collections of Dr. Koichi Ando and Dr. Makoto Yoshikura, and to find out the two mites that might have been expected on them. The following are records of these mites.

I. Genus *Metabinuncus* FAIN, 1972

Fain (1975, cited in Fain, 1976) elevated *Metabinuncus* Fain, 1972, up to the full genus from a subgenus of the genus *Binuncus* Radford, 1954. Generic characteristics are as follows: Body rather elongated. Legs I consisting of 4 segments, without terminal claws; trochanter I normal, that is, not boat-like shape. Tarsi II to IV each with 2 claws. Dorsal setae weakly expanded and striated, not barbed. Ventral setae ic_1 and ic_2 fine and short in both sexes; ic_3 and ic_4 strong and long in female, but only ic_3 strong and long in male. Only 3–4 setae, exclusive of genital setae, present dorsally on male hysterosoma (Dusbábek, 1969; Fain, 1976). Penis stout, but rather short and weakly sinuate. Legs I symmetrical in immature stages.

Metabinucus birmanicus Fain, 1976

The type host is *Hipposideros armiger* from Burma.

Material examined. Two ♂♂, 2 ♀♀ and 3 deutonymphs, ex *Hipposideros turpis* Bangs, Yonebara, Ishigaki-jima, Okinawa Prefecture, Japan, 3-X-1971 (coll. Dr. Koichi Ando).

II. Genus *Ewingana* Radford, 1948

Generic characteristics for *Ewingana* Radford (s. lat.) are presented as follows: Body slender, elongated. Leg I consisting of 4 segments; femur I narrower than trochanter I or genu I, with a lateral shell-like striated formation. Tarsi II-IV with one long claw and another that is either slightly, considerably or completely reduced, thus, claw formula on tarsi being 2-2-2, 2-1-1 or 1-1-1. Dorsal setae expanded and striated, barbed or not. Setae *vi* subequal to *ve* (♀), vulva without valves, but genital hooks stout. Penis short and straight. Genathosoma of rectangular shape. Nymphal claw formula on tarsi II-IV: 1-1-1. Parasitic on bats of the family Molossidae (Dusbábek, 1969).

Dusbábek (1968) subdivided the genus into the subgenera, *Ewingana* Radford, 1948, and *Doreyana* Dusbábek, 1968. Fain (1973) adorned the genus with another subgenus *Mormomyobia* Fain, 1973, for the male of *Ewingana* (*Mormomyobia*) *lamorali* Fain, 1973. The last subgenus was defined as follows (male): A voluminous tubular process, which was regarded as the copulatory sheath or gubernaculum for the penis, present on dorsal surface; setae *vi* and *sc i* situated distinctly posterior to *ve* and *sc e*, respectively; 7 pairs of genital setae present, though a total of 7 setae was depicted in fig. 28 (Fain, 1973); claws on tarsus II strongly uneven; tarsi III and IV each with a single claw; *ic*₁-*ic*₄ present; number of setae on segments of legs I-IV, trochanters 3-3-3-3, femora 5-4-3-3 (5-5-3-3 may be correct judging from figures 28 and 29 in Fain, 1973), genua 8-7-6-6, tibiae II-IV 6-6-6, tarsi II-IV 7-6-6, and tibio-tarsus I with 12 setae and an ovoid antero-ventral seta. Two solenidia on tibio-tarsus I, and one each on genua I and II, and on tarsus I. Parasitic on *Mormopterus* sp. from Sakaraka, S. O. Madagascar.

The Japanese species fairly well accords with the above definitions, and is relegated to the subgenus *Mormomyobia* Fain, 1973. The subgeneric characteristics, including female ones, become clearer by adding the new species below.

Ewingana (*Mormomyobia*) *yoshikurai* sp. nov.

(Figs. 1-3)

Male (Fig. 1). Type-series of specimens 420-490 (m=460.0) μ long, inclusive of gnathosoma, by 140-210 (197.6) μ wide. Gnathosoma ovoid. Idiosoma not strongly elongated.

Dorsum (Fig. 1 A and C). Setae *vi* minute and situated posterior to basal

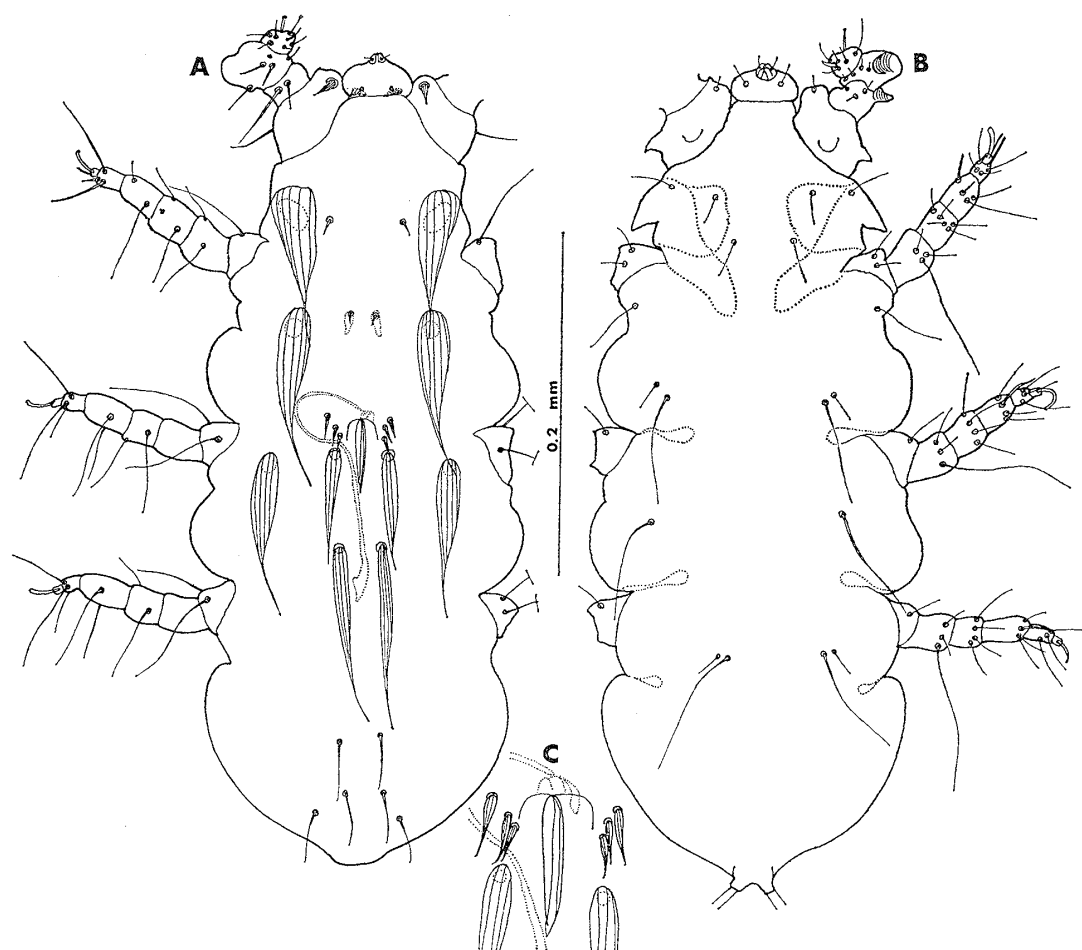


Fig. 1. *Ewingana (Mormomyobia) yoshikurai* sp. nov., male; A, dorsum; B, venter; C, aedeagus and genital setae.

level of *ve*; *sc i* minute, on weak sclerites, situated on basal level of *sc e*. Genital orifice at posterior third level between setae *sc i* and *d*₁; slightly inflated paired copulatory spicules of 38 and 45 μ long present; 3 pairs of striated genital setae situated anterior to *d*₁; penis long and strongly sinuate at distal third. Setae *l*₅ very long, but distinctly shorter than body length.

Venter (Fig. 1 B). A pair of prominent, bill-like lateral processes on coxal regions I. Setae *ic*₁, *ic*₄, *cx* I₂₋₃, *cx* II_{1 and 3} and *cx* IV present; *ic*₂₋₄ and *cx* II₃ long.

Legs (Fig. 1 A and B). Trochanter I with a thickened and striated dorsal seta, and ventrally with a pointed, postero-lateral process and a small protuberance. Structures, setations and setal nature as in definition of the subgenus and as in Fig. 1; femoral setation: 5-5-3-3.

Female (Fig. 2). Type-series of specimens 530-570 (560.0) μ long, inclusive of gnathosoma, by 235-245 (240.0) μ wide. Idiosoma not so elongated.

Dorsum (Fig. 2 A and C). Setae *vi* expanded and striated, situated on

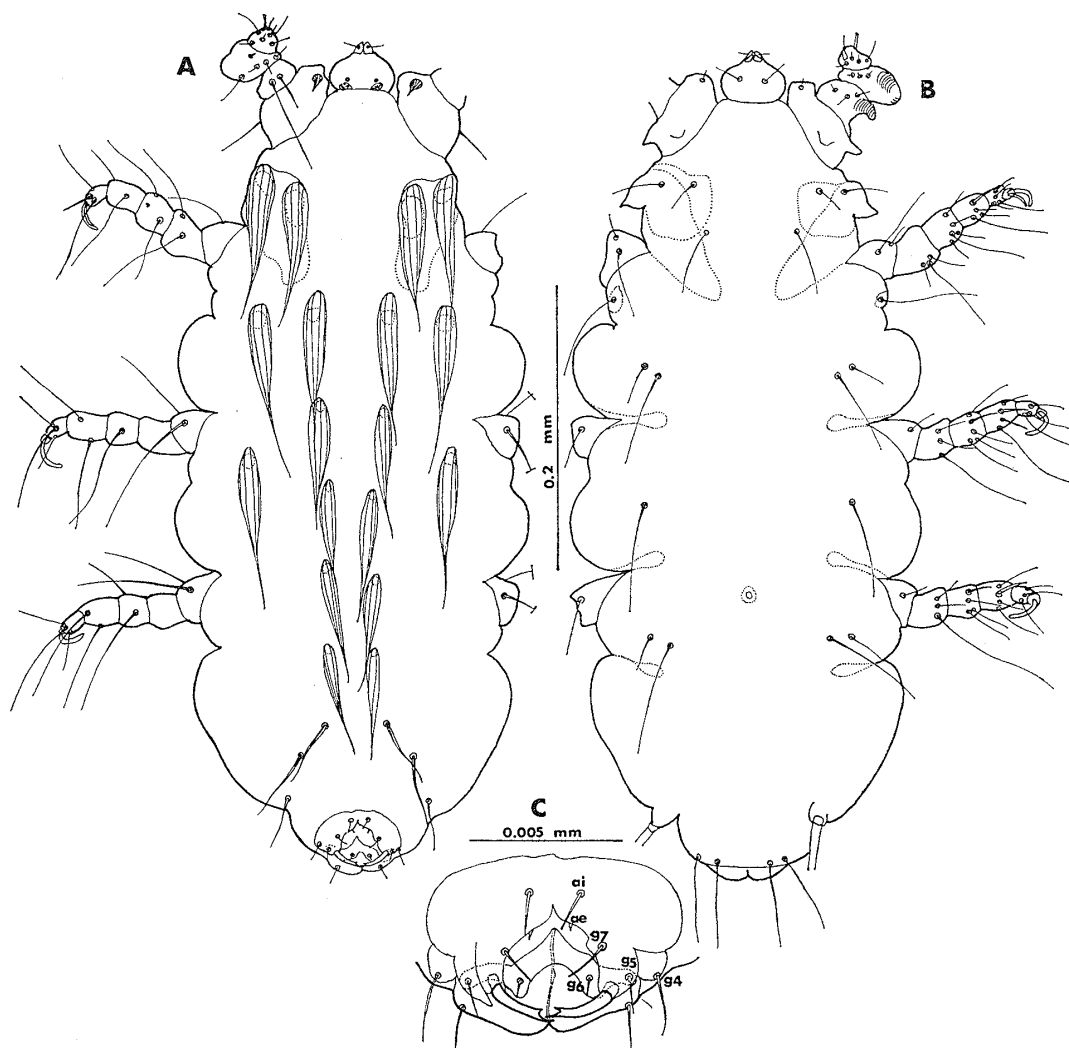


Fig. 2. *Ewingana (Mormomyobia) yoshikurai* sp. nov., female; A, dorsum; B, venter; C, genito-anal region.

slightly posterior level of *ve*; *sc i* same in nature as *sc e*, starting out of basal level of *sc e*. Hysterosomal setae d_{1-3} , and l_{1-2} swollen, tapering; d_{4-5} fine and rather long, with distinct basal inflation and striation; l_4 weaker than preceding 2 setae. Genital hook notched apically; *ae* vestigial, *ai* and g_{4-7} well developed; g_3 present caudally, and g_{1-2} on venter.

Venter (Fig. 2 B). Ventral setation as on male, but with additional genital setae caudally. An opening surrounded with embedded sclerite present on median line slightly anterior to basal level of ic_4 .

Outline of idosoma, structure and setations of gnathosoma and all legs and relative length of l_5 essentially as in male, but paired claws on tarsus II not so strongly unequal as in male.

Deutonymph (Fig. 3 DN). A single specimen available, measured 430μ long,

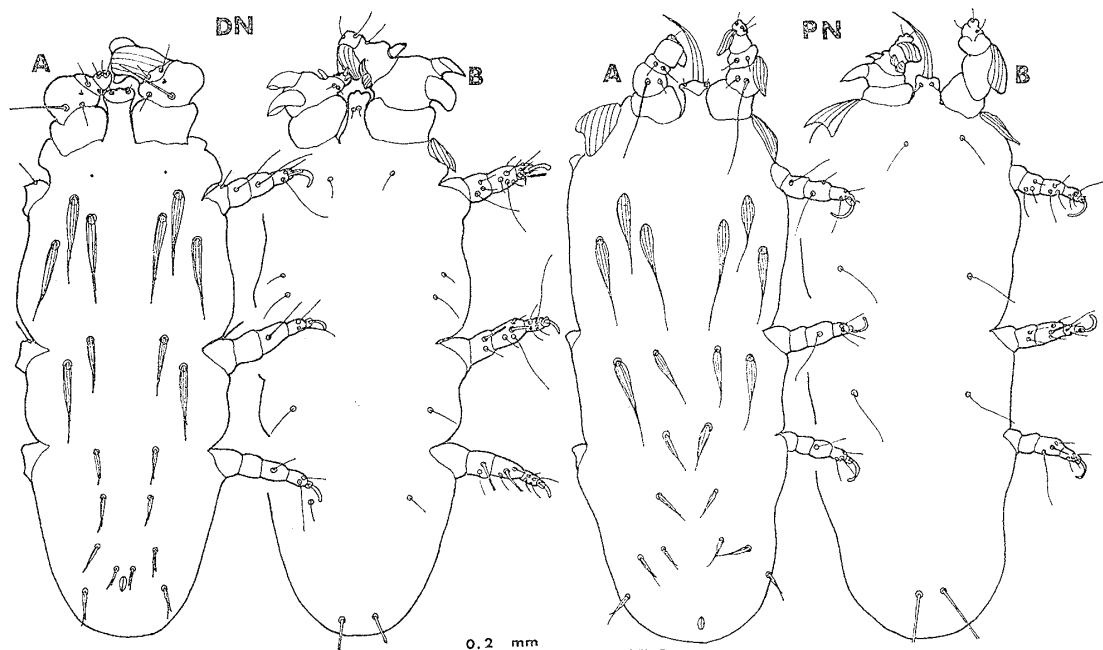


Fig. 3. *Ewingana (Mormomyobia) yoshikurai* sp. nov., deutonymph (DN) and protonymph (PN); A, dorsum; B, venter.

inclusive of gnathosoma, by $170\ \mu$ wide. Dorsal setae lacking *vi*; all dorsal setae not fully developed, barbed and notched apically. Ventral setae consisting of *ic*₁₋₄, *cx* II₁, *l*₅ and *cx* I₃ modified into striated formation. Legs, inclusive of asymmetrical first pair, as illustrated in Fig. 3 DN.

Protonymph (Fig. 3 PN). Two specimens measured $380\text{--}435\ \mu$ long, inclusive of gnathosoma, by $140\text{--}175\ \mu$ wide. Dorsal setae *vi* and *d*₅ lacking. All dorsal setae moderately developed and only caudal setae barbed weakly. Ventral setae consisting of *ic*₁₋₃ and *l*₅. Legs, inclusive of slightly asymmetrical first pair, as illustrated in Fig. 3 PN.

The structure of the legs I and the nature of the dorsal setae for the 2 protonymphs are somewhat different from those for the deutonymph described above. Either nymph is, however, regarded as the immature stage of *E. (M.) yoshikurai* sp. nov., since any other kind of adult myobiid has not been found on the host bat individual.

Material examined. Holotype male, allotype female, five pairs of male and female paratypes, 1 male, 6 females, 1 deutonymph and 2 protonymphs, ex *Tadarida teniotis insignis* (Blyth), the fourth specimen from Japan (Yoshikura, 1969), Kumamoto City, Japan, 24-II-1964 (leg. Dr. Makoto Yoshikura).

The holotype and allotype are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo, Japan (NSMT-Ac 9278-9279), and all the other specimens in the collection of the author.

The present new species is named after Dr. Makoto Yoshikura.

Remarks. The subgenus *Mormomyobia* Fain has so far been known only from the male of *Ewingana* (*Mormomyobia*) *lamorali* Fain. Although the Japanese species bears some remarkable contradictory characteristics, the author relegated the mite in the subgenus *Mormomyobia* with the following assumptions: 1) the presence of some aedeagus, which is probably associated with the elongation of the penis, is characteristic of the subgenus, and the form or construction of the aedeagus may be of the specific level; 2) the variation of the seta *sc i* in its position is regarded to be of the specific level.

The female characteristics are quite alike in *Mormomyobia* Fain and the nominate subgenus. The notched apices of the genital hooks seem to be characteristic only of *Mormomyobia* Fain. Since more than half a number of the known species of the *Ewingana* mites have been described merely on the females, some species are likely to be transferred to the subgenus *Mormomyobia* Fain.

The author has obtained another mite of the subgenus from a Bornean bat, and thinks that mites of the subgenus *Mormomyobia* Fain prevail among *Tadarida* bats distributed in the Oriental Region. *Ewingana lavoipierrei* (Paran, 1966) described on the female holotype from *Tadarida johorensis* from Malaya possibly belongs to *Mormomyobia* Fain, though this mite has been relegated to the nominate subspecies by Dusbábek (1968) because of the close resemblance of the female characteristics.

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REFERENCES

- Dusbábek, K., 1968. Some new genera and species of myobiid mites (Acarina). *Folia parasit.*, **15**: 359–376.
- 1969. Generic revision of the myobiid mites (Acarina: Myobiidae) parasitic on bats. *Ibid.* **16**: 1–17.
- Fain, A., 1972. Myobiidae de l'Angola (Acarina: Trombidiformes). *Publ. cult. Co. Diam. Ang., Lisboa*: 13–68.
- 1973. Notes sur la nomenclature des poils idiosomax chez les Myobiidae avec description de taxa nouveaux (Acarina: Trombidiformes). *Acarologia*, **15**: 290–309.
- 1976. Notes sur des Myobiidae parasites de rongeurs, d'insectivores et de chiroptères (Acarina: Prostigmata). *Acta zool. pathol. Antverpiensia*, **64**: 3–32.
- Paran, T. P., 1966. A new fur mite from a Malayan bat, *Neomyobia lavoipierrei* n. sp. (Acarina: Myobiidae). *Acarologia*, **8**: 587–593.
- Yoshikura, M., 1969. Remarkable small mammals from Kumamoto Prefecture, Japan. *Shizen to Bunka o Aisuru Kai Kaishi (Kumamoto)*: 10–12. (In Japanese.)